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INFORMATION DISCLOSURE CITATION

OTHER REFERENCES

| Ex. | Doc # | Description (Author, Title, Date, Pertinent Pages, Etc.) |
|-----|-------|--|
| | A | KOO et al. "Amyloid β -Protein as a Substrate Interacts with Extracellular Matrix to Promote Neurite Outgrowth," Proc. Natl. Acad. Science, Vol. 90, pp. 4748-4752, May 1993. |
| | B | NARINDRASORSAK et al. "Characterization of High Affinity Binding between Laminin and Alzheimer's Disease Amyloid Precursor Proteins," Laboratory Investigation, Vol. 67, No. 5, pp. 643-652, 1992. |
| | C | NARINDRASORSAK et al. "An Interaction between Basement Membrane and Alzheimer Amyloid Precursor Proteins Suggests a Role in the Pathogenesis of Alzheimer's Disease," Laboratory Investigation, Vol. 72, No. 3, pp. 272-282, 1995. |
| 6C | D | MANN. "Cerebral Amyloidosis, Ageing and Alzheimer's Disease; A Contribution From Studies on Down's Syndrome," Neurobiology of Aging, Vol. 10, pp. 397-399, 1989. |
| | E | GAJDUSEK. "Unconventional viruses and the Origen and Disappearance of Kuru," Science, Vol. 197, No 4307, Sept. 2 1977. |
| | F | PRUSINER et al. "Purification and Structural Studies of a Major Scrapie Prion Protein," Cell, Vol. 38, 127-134, Aug. 1984. |
| | G | PRUSINER. "Prions," [publication data unknown]. |
| | H | TATEISHI et al. "Gerstmann-Straussler-Scheinker Disease: Immunohistological and Experimental Studies," Annals of Nuerology, Vol. 24, No. 1, July 1988. |
| | I | FOIDART et al. "Distribution and Immunoelectron Microscopic Localization of Laminin, A Non collagenous Basement Membrane Glycoprotein," Laboratory Investigation, Vol. 42, No. 3, p. 336, 1980. |

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OTHER REFERENCES (cont.)

| Ex. | Doc # | Description (Author, Title, Date, Pertinent Pages, Etc.) |
|-----|-------|---|
| | J | BURGESON et al. "A New Nomenclature for the Laminins," <i>Matrix Biology</i> , Vol. 14, pp. 209-211, 1994. |
| | K | YURCHENCO et al. "Laminin Polymerization in Vitro: Evidence for a two step assembly with Domain Specificity," <i>The Journal of Biological Chemistry</i> , Vol. 260, No. 12, pp. 7636-7644, June 25, 1985. |
| | L | YURCHENCO et al. "Laminin Forms an Independent Network in Basement Membranes," <i>The Journal of Cell Biology</i> , Vol. 117, No. 5, pp. 1119-1133, June 1993. |
| | M | NEWGREEN et al. "Fibronectin in Early Avian Embryos: Synthesis and Distribution Along the Migration Pathways of Neural Crest Cells," <i>Cell tissue res.</i> Vol. 211, pp. 211-269, 1980. |
| | N | ROVASIO et al. "Neural Crest Cell Migration: Requirements for Exogenous Fibronectin and High Cell Density," <i>The Journal of Cell Biology</i> , Vol. 96, pp. 462-473, Feb. 1983. |
| | O | LANDER et al. "Laminin is associated with the 'nerite outgrowth-promotion factors' found in conditioned media," <i>Proc. Natl. Acad. Sci. USA</i> , Vol. 82, pp. 2183-2187, April 1985. |
| OC | P | FRASER et al. "A monoclonal antibody against a laminin-heparan sulfate proteoglycan complex perturbs cranial neural crest migration in vivo," <i>The Journal of Cell Biology</i> , Vol. 106, pp. 1321-1329, April 1988. |
| | Q | KLEINMAN et al. "Formation of a Supramolecular Complex Is Involved the Reconstitution of Basement Membrane Composets," <i>Biochemistry</i> , Vol. 22, pp. 4969-4974, 1983. |
| | Q | ENGVALLE et al. "Mapping of Domains in Human Laminin Using Monoclonal Antibodies: Localization of the Neurite-promotion Site," <i>The Journal of Cell Biology</i> , Vol. 103, No. 6, Pt. 1, pp. 2457-2465, 1986. |
| | S | LIESI et al. "Laminin is induced in astrocytes of adult brain by injury," <i>The EMBO Journal</i> , Vol. 3, No. 3, pp. 683-686, 1984. |
| | T | TERRANOVA et al. "Role of laminin in the attachment of PAM 212 (epithelial) Cells to Basement Membrane Collagen," <i>Cell</i> , Vol. 22, pp. 719-726, Dec. 1980. |
| | U | RAO et al. "Binding domain for laminin of type IV collagen," <i>Biochemical and biophysical research communications</i> , Vol. 128, no. 1, April 16 1985. |
| | V | CHARONIS et al. "Binding of laminin to type IV collagen: A morphological study," <i>The Journal of Cell Biology</i> , Vol. 100, pp. 1848-1853, 1985. |
| | W | LAURIE et al. "Localization of Binding Sites for Laminin, Heparan Sulfate Proteoglycan and Fibronectin on Basement Membrane (Type IV) Collagen," <i>J. Mol. Biol.</i> , Vol. 189, pp. 205-216, 1986. |
| | X | RIOPELLE et al. "Functional interactions of neuronal heparan sulphate proteoglycans with laminin," <i>Brain Research</i> , Vol. 525, pp. 92-100, 1990. |
| | Y | BATTAGLIA et al. "Basement-membrane heparan sulfate proteoglycan binds to laminin by its heparan sulfate chains and to nidogen by sites in the protein core," <i>Eur. J. Biochem.</i> , Vol. 208, pp. 359-366, 1992. |
| | Z | SAKASHITA et al. "Basement membrane glycoprotein laminin binds to heparin," <i>FEBS letters</i> , Vol. 116, No. 2, July 1980. |

OTHER REFERENCES (cont.)

| Ex. | Doc # | Description (Author, Title, Date, Pertinent Pages, Etc.) |
|-----|-------|--|
| | AA | DEL ROSSO et al. "Binding of the basement-membrane glycoprotein laminin to glycosaminoglycans," Biochem. J., Vol. 199, pp. 699-704, 1981. |
| | BB | SKUBITZ et al. "Localization of three distinct heparin-binding Domains of Laminin by Monoclonal antibodies," The Journal of biological chemistry, Vol. 263, No. 10, pp. 4861-4868, April 5 1988. |
| | CC | HALL et al. "The α_1/β_1 and α_2/β_1 integrin heterodimers mediate cell attachment to distinct sites on laminin," The Journal of Cell Biology, Vol. 110, pp. 2175-2184, June 1990. |
| | DD | GOODMAN et al. "Multiple cell surface receptors for the short arms of laminin: α_1/β_1 integrin and RGD-dependent proteins mediate cell attachment only to domains III in Murine Tumor Laminin," The Journal of Cell Biology, Vol. 113, No. 4, pp. 931-941, May 1991. |
| | EE | YURCHENCO et al. "Heparin modulation of laminin polymerization," The Journal of Biological chemistry, Vol. 265, No. 7, pp. 3981-3991, March 5 1990. |
| | FF | FOX et al. "Recombinant nidogen consists of three globular domains and mediates binding of laminin to collagen type IV," The EMBO Journal, Vol. 10, No. 11, pp. 3137-3146, 1991. |
| | GG | SUNG et al. "Cell and Heparin Binding in the Distal Long Arm of Laminin: Identification of Active and Cryptic Sites with Recombinant and Hybrid Glycoprotein," The Journal of Cell Biology, Vol. 123, No. 5, pp. 1255-1268, Dec. 1993. |
| OC | HH | SHIMOMURA et al. "Studies on Macromolecular Components of human glomerular basement membrane and alterations in diabetes," Diabetes. Vol. 36, March 1987. |
| | II | LYON et al. "Co-deposition of basement membrane components during the induction of murine splenic AA amyloid," Laboratory investigation, Vol. 64, No. 6, p. 785, 1991. |
| | JJ | PERLMUTTER et al. "Microangiopathy, the Vascular Basement Membrane and Alzheimer's Disease: A Review," Brain Research Bulletin, Vol. 24, pp. 677-686, 1990. |
| | KK | MURTOMAKI et al. "Laminin and its neurite outgrowth-promotin domain in the brain in alzheimer's disease and down's syndrome patients," Journal of Neuroscience Research, Vol. 32, pp. 261-273, 1992. |
| | LL | PERLMUTTER et al. "Vascular basement membrane components and the lesions of Alzheimer's Disease: light and electron microscopic analyses," Microscopy research and technique, Vol. 28, pp. 204-215, 1994. |
| | MM | NARINDRASORASAK et al. "Characterization of high affinity binding between lanimim and Alzheimer's Disease amyloid precursor proteins," Laboratory investigation, Vol. 67, No. 5, p. 643, 1992. |
| | NN | NAIKI et al. "Kinetic analysis of amyloid fibril polymerization in vitro," Laboratory investigation, Vol. 65, No.1, p.104, 1991. |
| | OO | LEVINE et al. "Thioflavine T interaction with synthetic Alzheimer's Disease β -amyloid peptides: detection of amyloid aggregation in solution," Protein Science, Vol. 2, pp. 404-410, 1993. |

OTHER REFERENCES (cont.)

| Ex. | Doc # | Description (Author, Title, Date, Pertinent Pages, Etc.) |
|-----|-------|--|
| | PP | MAIKI et al. "First-order kinetic model of Alzheimer's β -amyloid fibril extension in vitro," Laboratory investigation, Vol. 74, No. 2, p. 374, 1996. |
| | QQ | WESTERMARK et al. "Islet amyloid in type 2 human diabetes mellitus and adult diabetic ats contains a novel putative polypeptide hormone," American Journal of Pathology, Vol. 127, No. 3, June 1987. |
| | RR | COOPER et al. "Purification and characterization of a peptide from amyloid-rich pancreases of type 2 diabetic patients, " Proc. Natl. Acad. Sci. USA, Vol. 84, pp. 8628-8632, Dec 1987. |
| | SS | LEVINE. "Thioflavine T interaction with amyloid β -sheet structures," int. j. exp. clin. invest. Vol. 2, pp. 1-6, 1995. |
| | TT | LAEMMLI. "Cleavage of structural proteins during the assembly of the head of bacteriophage T4," Nature, Vol. 227, Aug. 15 1970 |
| | UU | SCHAGGER et al. "Tricine-sodium dodecyl sulfate-polyacrylamide gel electrophoresis for the separation of proteins i8ng the range from 1 to 100kDa," analytical biochemistry, Vol. 166, pp. 368-379, 1987. |
| | VV | SASAKI et al. "The laminin B2 chain has a multidomain structure homologous to the B1 chain," The journal of biological chemistry, vol. 262, No. 35, pp. 17111-17117, Dec. 15 1987. |
| OC | WW | SASAKI et al. "Sequence of the cDNA encoding the laminin B1 chain reveals a multidomain protein containing cysteine-rich repeats," Proc. natl. Acad. Sci. USA, Vol. 84, pp. 935-939, Feb. 1987. |
| | XX | DURKIN et al. "Primary structure of the mouse laminin B2 chain and Comparison with Laminin B1," Biochemistry, Vol. 27, pp. 5198-5204, 1988. |
| | YY | SASAKI et al. "Laminin, a multidomain protein," The journal of Biological Chemistry, Vol. 263, No. 32, pp. 16536-16544, Nov 15 1988. |
| | ZZ | COLOGNATO et al. "Mapping of Network-forming, heparin-hinding, and $\alpha\beta 1$ integrin-recognition sites within the α -chain short arm of Laminin-1," The journal of biological chemistry, Vol. 270, No. 16, pp. 9398-9406, April 21 1995. |
| | AAA | MANDYBUR et al. "Cerebral amyloid angiopathy: the vascular pathology and complications," Journal of Neuropathology and Experimental neurology, Vol. 45, No. 1, pp. 79-90, Jan 1986. |
| | BBB | PARDRIDGE et al. "Amyloid angiopathy of Alzheimer's Disease: amino acid composition and partial sequence of a 4,200-dalton peptid isolated from cortical microvessels," Journal of Neurochemistry, vol. 49, No. 5, 1987. |
| | CCC | PIKE et al. "In vitro aging of β -amyloid protein causes peptide aggregation and neurotoxicity," Brain research, Vol. 563, pp. 311-314, 1991. |
| | DDD | PIKE et al. "Structure-activity analyses of β -amyloid peptides: contributions of the $\beta 25$ -35 region to aggregation and neurotoxicity," Journal of neurochemistry, vol. 64, no.1, 1995. |
| | EEE | HARRIGAN et al. "Beta amyloid is neurotoxic in hippocampal slice cultures," Neurobiology of aging, Vol. 16, No. 5, pp. 779-789, 1995. |
| | FFF | GAMES et al. "Alzheimer-type neuropatholofy in transgenic mice overexpressing V717F β -amyloid precursor protein, " Nature, Vol. 373, Feb. 9 1995. |

OTHER REFERENCES (cont.)

| Ex. | Doc # | Description (Author, Title, Date, Pertinent Pages, Etc.) |
|-----|-------|--|
| | GGG | HSIAO et al. "Age related CNS disorder and early death in transgenic FVB/N mice overexpressing Alzheimer amyloid precursor proteins," Neuron, Vol. 15, pp. 1203-1218, Nov. 1995. |
| | HHH | FLOOD et al. "An amyloid β -protein fragment, A β [12-28], equipotently impairs post-training memory processing when injected into different limbic system structures," Brain research, Vol. 663, pp. 271-276, 1994. |
| | III | FLOOD et al. "Amnesic effects in mice of four synthetic peptides homologous to amyloid β -protein from patients with Alzheimer's Disease," proc. natl. acad. sci. USA, vol. 88, pp. 3363-3366, April 1991. |
| | JJJ | PUCHTLER et al. "On the Binding of Congo Red by Amyloid," [publication data unknown]. |
| | KKK | HARADA et al. "Human amyloid protein: chemical variability and homogeneity," The Journal of histochemistry and cytochemistry, Vol. 19, No. 1, 1971. |
| | LLL | METAXAS. "Familial mediterranean fever and amyloidosis," Kidney International, Vol. 20, pp. 676-685, 1981. |
| | MMM | SKINNER et al. "The prealbumin nature of the amyloid protein in familial amyloid polyneuropathy (Fap) Swedish variety," Biochemical and Biophysical Research Communications, vol. 99, No. 4, pp. 1326-1332, 1981. |
| | NNN | SARAIVA et al. "Amyloid Fibril Protein in Familial Amyloidotic Polyneuropathy, Portuguese Type," J. Clin. Invest., Vol. 74, pp. 104-119, July 1984. |
| 00 | OOO | SARAIVA et al. "Studies on plasma transthyretin (prealbumin) in familial amyloidotic polyneuropathy, Portuguese type," J. Lab. Clin. Med., Vol. 102, No. 4, Oct. 1983. |
| | PPP | TAWARA et al. "Amyloid fibril protein in type 1 familial amyloidotic polyneuropathy in Japanese," J. Lab. Clin. Med., Vol. 96, No. 6, Dec. 1981. |
| | QQQ | JENSSON et al. "The saga of cystatin C gene mutation causing amyloid angiopathy and brain hemorrhage-clinical genetics in Iceland," Clinical Genetics, Vol. 36, pp. 368-377, 1989. |
| | RRR | WRIGHT et al. "Relationship of amyloid deposits in the human aorta to aortic atherosclerosis," Laboratory Investigation, Vol. 30, No. 6, p. 767, 1974. |
| | SSS | PITKANEN et al. "Senile systemic amyloidosis," AJP, Vol. 117, No. 3, Dec. 1984. |
| | TTT | JOHNSON et al. "Biology of disease," Laboratory Investigation, Vol. 66, no. 5, p. 522, 1992. |
| | UUU | BUTLER et al. "Immunoreactive calcitonin in amyloid fibrils of medullary carcinoma of the thyroid gland," Arch Pathol Lab Med, Vol. 110, July 1986. |
| | VVV | BERGER et al. "Calcitonin-like immunoreactivity of amyloid fibrils in medullary thyroid carcinomas," Virchows archiv a pathol anat histopathol, Vol. 412, pp. 543-551, 1988. |
| | WWW | GEJYO et al. "A new form of amyloid protein associated with chronic hemodialysis was identified as β_2 -microglobulin," Biochemical and Biophysical Research Communications, Vol. 129, No. 3, pp. 701-706, June 28, 1985. |
| | XXX | GEJYO et al. " β_2 -microglobulin: a new form of amyloid protein associated with chronic hemodialysis," Kidney International, Vol. 30, pp. 385-390, 1986. |

OTHER REFERENCES (cont.)

| Ex. | Doc # | Description (Author, Title, Date, Pertinent Pages, Etc.) |
|-----|-------|--|
| OC | YYY | GLENNER et al. "Alzheimer's Disease: initial report of the purification and characterization of a novel cerebrovascular amyloid protein," Biochemical and Biophysical Research Communications, Vol. 120, No. 3, pp. 885-890, May 16, 1984. |
| OC | ZZZ | MASTERS et al. "Amyloid plaque core protein in Alzheimer's Disease and Down Syndrome," Proc. Natl. Acad. Sci. USA Vol. 82, pp. 4245-4249, June 1985. |
| OC | AAAA | RUMBLE et al. "Amyloid A4 protein and its precursor in down's syndrome and Alzheimer's Disease," The New England Journal of Medicine, Vol. 320, No. 22, June 1, 1989. |

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